1022-76-56   **Shu-Ming Sun*** (`sun@math.vt.edu`), Department of Mathematics, Virginia Tech, Blacksburg, VA 24061. *Solitary or localized surface waves in water with surface tension.*

The talk discusses recent development on the existence theory of two-dimensional (2D) and three-dimensional(3D) waves on free surface of water with surface tension using the fully nonlinear governing equations. It will be shown that 2D solitary waves exist for large surface tension while there are no such waves for some small surface tension. In the case of large surface tension, there exist 3D solitary waves and 3D non-solitary waves bifurcating from 2D solitary waves. The stability of 2D solitary waves will also be discussed. (Received September 07, 2006)